Abeta-specific Th2 cells provide cognitive and pathological benefits to Alzheimer's mice without infiltrating the CNS.

Journal: Neurobiol Dis

Publication Year: 2009

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PubMed link: 19167499

Funding Grants: ES-Derived Cells for the Treatment of Alzheimer's Disease

Public Summary:

Scientific Abstract:
We have found that a small number of purified Th2-biased Abeta-specific T cells are sufficient to provide profound cognitive and pathological benefits in an APP+PS1 mouse model for Alzheimer's disease. Six weeks after receiving T cell infusions, cognitively-impaired mice performed significantly better in working memory tasks, which correlated with higher plasma levels of soluble Abeta. Pathological analysis of the hippocampus revealed a 30% decrease of plaque-associated microglia and less vascular amyloidosis in T cell treated mice. The infusion of Abeta-specific Th2 cells also reduced plasma levels of IFN-gamma, TNF-alpha, GM-CSF, IL-2 and IL-4, which are elevated in untreated APP+PS1 mice. No significant immune cell infiltration and no anti-Abeta antibody titers occurred in the T cell treated mice. These results demonstrate that Abeta-specific Th2 cells are sufficient to reverse cognitive impairment and provide multiple pathological benefits in an Alzheimer's mouse model.